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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,456	01/15/2004	Hans-Dieter Bruckner	MERCK-1963-D01	5067
23599	7590	11/09/2004	EXAMINER	
MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			VALENTI, ANDREA M	
			ART UNIT	PAPER NUMBER
			3643	

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/757,456

**Applicant(s)**


BRUCKNER ET AL.

**Examiner**

Andrea M. Valenti

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/230,266.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 17-19, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over in PCT WO 94/05727 to Daponte in view of PCT WO 96/03029 to Daponte and U.S. Patent No. 5,401,306 to Schmid et al.

Regarding Claim 15, Daponte '727 teaches an agricultural film (Daponte '727 Title and page 1 line 8) comprising a multi-layer interference pigment comprising a transparent carrier material (Daponte '727 English abstract and page 5 line 37) wherein the layers of high refractive index material consist of a non-absorbing oxide or mixtures thereof, inherently the pigment having high transmissibility in the visible region of light, and high reflectivity in the near infrared region (Daponte '727 page 6 line 15-16 and page 1 line 24-25).

Daponte '727 does not explicitly teach coating with a first layer of a high refractive index material and thereon alternating layers of low refractive index material then high refractive index material. However, Daponte '029 teaches a multiplayer reflective material for agricultural applications that contains layers with refractive indices (Daponte '029 claim 1). It would have been obvious to one of ordinary skill in the art to

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modify the teachings of Daponte '727 with the teachings of Daponte '029 at the time of the invention for the optical advantage of promoting plant growth and morphogenesis.

Daponte '727 as modified teaches a the difference in refractive indices being at least 0.03 (Daponte '029 claim 1), but is silent on the refractive index being at least 0.1. However, it would have been obvious to one of ordinary skill in the art to modify the teachings of Daponte at the time of the invention since the modification is merely derived through routine laboratory tests and experimentation to optimize the optical efficiency of the system for known desired results (U.S. Patent No. 4,920,692 to Kitamura teaches an agricultural film with a desired refractive index of at least 0.1 in Col. 3 line 20-30).

Daponte '727 does teaches a metal oxide (Daponte '727 page 4 line 13), but does not explicitly teach a colorless oxide. However, Schmid teaches pigment film coatings utilizing either colored or colorless metal oxides (Schmid Col. 4 line 18 and line 34-35). It would have been obvious to one of ordinary skill in the art to modify the teachings of Daponte with the teachings of Schmid at the time of the invention since the modification is the selection of an alternate equivalent known material as an engineering design choice for desired known optical properties.

Regarding Claim 17, Daponte '727 as modified teaches the transparent carrier is mice, phyllosilicate,  $\text{BiOCl}$ ,  $\text{PbCO}_3 \times \text{Pb(OH)}_2$ , platelet  $\text{SiO}_2$  or glass flakes (Daponte '727 page 4 line 15).

Regarding Claims 18 and 28, Daponte '727 as modified teaches the pigment of high refractive index layers is  $\text{TiO}_2$ ,  $\text{ZrO}_2$ ,  $\text{ZnO}$  or mixtures of these oxides (Daponte '727 page 4 line 5 line 10).

Regarding Claim 19, Daponte '727 as modified teaches the pigment layer of low refractive index is  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{AlOOH}$ ,  $\text{B}_2\text{O}_3$  or mixture thereof, and the layer optionally further comprises alkali metal oxides or alkaline earth metal oxides (Daponte '727 page 5 line 10).

Regarding Claims 25 and 26, Daponte '727 as modified teaches coating first  $\text{TiO}_2$ , followed by  $\text{SiO}_2$ , followed by  $\text{TiO}_2$  (Daponte '727 page 5 line 10 and Daponte '029 claim 1 line 1-2).

Regarding Claim 27, Daponte '727 as modified is silent on coating on both sides of the pigment carrier. However, it would have been obvious to one of ordinary skill in the art to modify the teachings of Daponte at the time of the invention since the modification is merely the duplication of a known step for a multiple effect for the advantage of complete coverage and optical control.

Claims 16 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT WO 94/05727 to Daponte in view of PCT WO 96/03029 to Daponte and U.S. Patent No. 5,401,306 to Schmid et al as applied to claim 15 above, and further in view of Japanese Patent JP 07-246366 to Yamane.

Regarding Claims 16 and 20, Daponte '727 as modified teaches the multiplayer interference pigment is prepared by alternate coating of the transparent carrier material

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with a metal oxide of a high refractive index with a metal oxide of a low refractive index, but is silent on a wet process by hydrolysis. However, Yamane teaches that the wet hydrolysis process is an old and notoriously well-known coating method (Yamane English translation [0039]-[0042]). It would have been obvious to one of ordinary skill in the art to further modify the teachings of Daponte with the teachings of Yamane at the time of the invention since the modification is merely an engineering design choice involving the selection of an old and notoriously well-known manufacturing means selected for parameters such as cost and time efficiency.

Regarding Claim 21, Daponte '727 as modified teaches the transparent carrier is mica, phyllosilicate,  $\text{BiOCl}$ ,  $\text{PbCO}_3 \times \text{Pb(OH)}_2$ , platelet  $\text{SiO}_2$  (Daponte '727 page 4 line 15).

Regarding Claim 22, Daponte '727 as modified teaches the pigment of high refractive index layers is  $\text{TiO}_2$ ,  $\text{ZrO}_2$ ,  $\text{ZnO}$  or mixtures of these oxides (Daponte '727 page 4 line 27).

Regarding Claim 23, Daponte '727 as modified teaches the pigment layer of low refractive index is  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{AlOOH}$ ,  $\text{B}_2\text{O}_3$  or mixture thereof, and the layer optionally further comprises alkali metal oxides or alkaline earth metal oxides (Daponte '727 page 5 line 10).

Regarding Claim 24, Daponte as modified teaches coating by a fluidized bed reactor by gas phase (Schmid '306 Col. 4 line 65).

***Response to Arguments***

Applicant's arguments with respect to claims 15-28 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent No. 5,364,467; EP 0759566; U.S. Patent No. 6,624,486; and PCT WO 96/03029.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

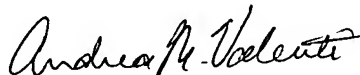
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrea M. Valenti whose telephone number is 703-305-

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3010. The examiner can normally be reached on 7:30am-5pm M-F; Alternating Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter M. Poon can be reached on 703-308-2574. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Andrea M. Valenti  
Patent Examiner  
Art Unit 3643

04 November 2004

  
Peter M. Poon  
Supervisory Patent Examiner  
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